

EXAMPLE SCENARIO 8
Option 2

TABLE 4.1.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE

The Dean Company

<p>Scenario Timeframe: Future</p> <p>Medium: Soil</p> <p>Exposure Medium: Soil</p>										
Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/Reference	Intake Equation/Model Name	
Ingestion	Resident	Adult	Soil at Site 1	CS	Chemical Concentration in Soil	See Table 3.3	mg/kg	See Table 3.3	Chronic Daily Intake (CDI) (mg/kg-day) =	
				IR	Ingestion Rate of Soil	100	mg/day	EPA, 1991	CS x IR x FI x EF x ED x CF1 x 1/BW x 1/AT	
	Child	Child		FI	Fraction Ingested	1	--	Professional Judgment		
				EF	Exposure Frequency	350	days/year	EPA, 1991		
				ED	Exposure Duration	24	years	EPA, 1991		
				CF1	Conversion Factor	1.0E-06	kg/mg	--		
				BW	Body Weight	70	kg	EPA, 1991		
				AT-C	Averaging Time - Cancer	25,550	days	EPA, 1989		
				AT-N	Averaging Time - Non-Cancer	8,760	days	EPA, 1989		
				CS	Chemical Concentration in Soil	See Table 3.3	mg/kg	See Table 3.3	CDI (mg/kg-day) =	
				IR	Ingestion Rate of Soil	200	mg/day	EPA, 1991	CS x IR x FI x EF x ED x CF1 x 1/BW x 1/AT	
Child/Adult	Child/Adult	Soil at Site 1		FI	Fraction Ingested	1	--	Professional Judgment		
				EF	Exposure Frequency	350	days/year	EPA, 1991		
				ED	Exposure Duration	6	years	EPA, 1991		
				CF1	Conversion Factor	1.0E-06	kg/mg	--		
				BW	Body Weight	15	kg	EPA, 1991		
				AT-C	Averaging Time - Cancer	25,550	days	EPA, 1989		
				AT-N	Averaging Time - Non-Cancer	2,190	days	EPA, 1989		
				CS	Chemical Concentration in Soil	See Table 3.3	mg/kg	See Table 3.3	CDI (mg/kg/day) =	
				IF	Ingestion Factor	114	mg-year/kg-day	EPA 1991b	CS x IF x CF x FI x EF x 1/AT	
				BW-C	Body Weight, Child	15	kg	EPA, 1991a	where	
				BW-A	Body Weight, Adult	70	kg	EPA, 1991a	IF = (ED-C x IR-C / BW-C) + (ED-TOT - ED-C) x	
				IR-C	Ingestion Rate, Child	200	mg/day	EPA, 1991a	(IR-A / BW-A)	
				IR-A	Ingestion Rate, Adult	100	mg/day	EPA, 1991a		
				ED-C	Exposure Duration, Child	6	years	EPA, 1991a		
				ED-TOT	Exposure Duration, Total	30	years	EPA, 1991a		
				CF	Conversion Factor	1.0E-06	kg/mg	--		
				FI	Fraction Ingested	1	unitless	Professional Judgment		
				EF	Exposure Frequency	350	days/year	EPA, 1991a		
				AT-C	Averaging Time - Cancer	25,550	days	EPA, 1989		

EXAMPLE SCENARIO 8
Option 2

TABLE 4.1.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE

The Dean Company

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/Reference	Intake Equation/Model Name		
Dermal	Resident	Adult	Soil at Site 1	CS	Chemical Concentration in Soil	See Table 3.3	mg/kg	See Table 3.3	CDI (mg/kg-day) = CS x CF1 x SA x AF x AB x EF x ED x 1/BW x 1/AT		
				CF1	Conversion Factor	1.0E-06	kg/mg	--			
				SA	Skin Surface Area Available for Contact	5,000	cm ²	EPA, 1997			
				AF	Soil to Skin Adherence Factor	0.19	mg/cm ²	EPA, 1997			
				AB	Absorption Factor	chemical-specific	unitless	EPA, 1995			
	Child			EF	Exposure Frequency	350	days/year	EPA, 1991	CDI (mg/kg-day) = CS x CF1 x SA x AF x AB x EF x ED x 1/BW x 1/AT		
				ED	Exposure Duration	24	years	EPA, 1991			
				BW	Body Weight	70	kg	EPA, 1991			
				AT-C	Averaging Time - Cancer	25,550	days	EPA, 1989			
				AT-N	Averaging Time - Non-Cancer	8,760	days	EPA, 1989			

EXAMPLE SCENARIO 8
Option 2

TABLE 4.1.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE

The Dean Company

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/Reference	Intake Equation/Model Name
Dermal (continued)	Resident (continued)	Child/Adult	Soil at Site 1	CS DF BW-C BW-A SA-C SA-A ED-C ED-TOT AF EF AB CF1 AT-C	Chemical Concentration in Soil Dermal Factor Body Weight, Child Body Weight, Adult Surface Area, Child Surface Area, Adult Exposure Duration, Child Exposure Duration, Total Soil to Skin Adherence Factor Exposure Frequency Absorption Factor Conversion Factor Averaging Time - Cancer	See Table 3.3 3,154 15 70 3,600 5,000 6 30 0.15 350 chemical-specific 1.0E-06 25,550	mg/kg cm ² -year/kg-day kg kg cm ² cm ² years years mg/cm ² days/year unitless kg/mg days	See Table 3.3 EPA 1991b EPA, 1991a EPA, 1991a EPA, 1997 EPA, 1997 EPA, 1991a EPA, 1991a Professional Judgment EPA 1991a EPA, 1995 -- EPA, 1989	CDI (mg/kg-day) = CS x CF1 x DF x AF x AB x EF x 1/AT where DF = (ED-C x SA-C / BW-C) + (ED-TOT - ED-C) x (SA-A / BW-A)

EPA 1989: Risk Assessment Guidance for Superfund. Volume 1: Human Health Evaluation Manual, Part A. OERR EPA/540/1-89/002.

EPA 1997: Exposure Factors Handbook, Volume 1. EPA/600/P-95/002Fa.

EPA 1991a: Risk Assessment Guidance for Superfund. Volume 1: Human Health Evaluation Manual - Supplemental Guidance, Standard Default Exposure Factors. Interim Final. OSWER 9285.6-03.

EPA 1991b: Human Health Evaluation Manual, Part B: Development of Risk-Based Preliminary Remediation Goals. OSWER Directive 9285.7-01B

EPA 1995: Assessing Dermal Exposure from Soil, Technical Guidance Manual, Region III, EPA/903-K-95-003.